

1 Claims

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3 1. An object having a primary identifier in the
4 form of a plurality of identification elements
5 embedded in the object, the identification elements
6 being visually detectable when illuminated by
7 infrared or ultraviolet electromagnetic radiation
8 but being visually indistinguishable from the rest
9 of the object when illuminated with visible light;
10 wherein the identification elements are randomly
11 distributed so that the positions of the
12 identification elements are unique to the object;
13 and wherein the object is provided with a reference
14 point in the form of a printed symbol defining an
15 area of the object in which at least some of the
16 identification elements are provided.

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18 2. An object as claimed in claim 1, wherein the
19 identification elements comprise fibres.

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21 3. An object as claimed in claim 2, wherein the
22 fibres are selected from the group consisting of
23 viscose, wool, cellulose, and synthetic fibres.

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25 4. An object as claimed in claim 1, wherein the
26 identification elements comprise solid particulates.

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28 5. An object as claimed in claim 4, wherein the
29 identification elements are selected from the group
30 consisting of mica, silica and synthetic
31 particulates.

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1 6. An object as claimed in any preceding claim,
2 wherein the identification elements are fluorescent.

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4 7. An object as claimed in any preceding claim,
5 wherein the identification elements are provided
6 with a fluorescent coating.

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8 8. An object as claimed in any preceding claim,
9 wherein the reference point does not have rotational
10 symmetry.

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12 9. An object as claimed in any preceding claim,
13 wherein the reference point has the form of a T-
14 shape.

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16 10. An object as claimed in any preceding claim,
17 comprising paper, plastic or metal.

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19 11. An object as claimed in any preceding claim,
20 also having a secondary identifier.

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22 12. An object as claimed in claim 11, wherein the
23 secondary identifier is unique to the object.

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25 13. An object as claimed in claim 11 or claim 12,
26 wherein the secondary identifier is printed on the
27 object.

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29 14. An object as claimed in any of claims 11 to 13,
30 wherein the secondary identifier comprises a number.

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1 15. An object as claimed in any of claims 11 to 13,
2 wherein the secondary identifier comprises a
3 barcode.
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5 16. A method of verifying that an object is
6 genuine, including the steps of:
7 creating a genuine object having a primary
8 identifier in the form of a plurality of
9 identification elements embedded in the object, the
10 identification elements being visually detectable
11 when illuminated by infrared or ultraviolet
12 electromagnetic radiation but being visually
13 indistinguishable from the rest of the object when
14 illuminated with visible light; wherein the
15 identification elements are randomly distributed so
16 that the positions of the identification elements
17 are unique to the genuine object; and wherein the
18 genuine object is provided with a reference point in
19 the form of a printed symbol defining an area of the
20 object in which at least some of the identification
21 elements are provided;

22 recording information relating to the positions
23 of the identification elements relative to the
24 reference point in the genuine object; and

25 comparing measured information relating to the
26 positions of identification elements in an object to
27 be verified with the recorded information for the
28 genuine object.
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30 17. A method as claimed in claim 16, wherein only
31 information relating to identification elements

1 within a specified area relative to the reference
2 point is recorded.

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4 18. A method as claimed in claim 16 or claim 17,
5 including the step of measuring the positions of
6 identification elements in the object to be
7 verified.

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9 19. A method as claimed in claim 18, wherein the
10 positions of identification elements in the object
11 to be verified are measured relative to a reference
12 point in the object to be verified.

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14 20. A method as claimed in any of claims 16 to 19,
15 wherein the information relating to the positions of
16 the identification elements in the genuine object is
17 converted into an alphanumerical code and recorded
18 in this form.

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20 21. A method as claimed in claim 20, wherein the
21 alphanumerical code is unique to that object.

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23 22. A method as claimed in claim 20 or claim 21,
24 wherein the measured information relating to the
25 positions of identification elements in the object
26 to be verified is also in the form of an
27 alphanumerical code, and the step of comparing the
28 information comprises comparing these alphanumerical
29 codes.

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1 23. A method as claimed in claim 22, wherein
2 corresponding numbers in each alphanumerical code
3 are compared to within a specified tolerance level.
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5 24. A method as claimed in any of claims 16 to 23,
6 wherein the genuine object is provided with a
7 secondary identifier, and the method includes the
8 step of detecting and recording information relating
9 to the secondary identifier.
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11 25. A method as claimed in claim 24, wherein the
12 secondary identifier is unique to the object.
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14 26. A method as claimed in claim 24 or claim 25,
15 wherein information relating to the object to be
16 verified is only compared to recorded information
17 relating to genuine objects having the same
18 secondary identifier.
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20 27. A method as claimed in any of claims 16 to 26,
21 wherein a plurality of genuine objects are created
22 and recorded.
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24 28. A method as claimed in any of claims 16 to 27,
25 wherein the identification elements are fluorescent,
26 and the method includes the steps of illuminating
27 the identification elements with ultraviolet light
28 and detecting the emitted electromagnetic radiation
29 with a camera.
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1 29. A method as claimed in claim 28, wherein the
2 camera image is analysed and converted into
3 alphanumerical data.
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5 30. A method as claimed in any of claims 16 to 29,
6 wherein the genuine object comprises paper, and the
7 method includes the step of adding the
8 identification elements to the paper during the
9 paper-making process.
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11 31. A detector for verifying that an object
12 according to the present invention is genuine,
13 comprising a source of infrared or electromagnetic
14 radiation; a camera; image analysis equipment for
15 converting the camera image into an alphanumerical
16 code; a database into which the alphanumerical code
17 can be recorded and from which alphanumerical codes
18 relating to other recorded camera images can be
19 retrieved; and processing equipment adapted to
20 compare the alphanumerical code relating to the
21 object being verified with the other alphanumerical
22 codes already stored in the database relating to
23 recorded camera images.
24

25 32. A detector as claimed in claim 31, wherein the
26 detector is adapted to detect the location of a
27 reference point on the object and to direct the
28 camera to this part of the object.
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30 33. A detector as claimed in claim 31, wherein the
31 detector is adapted to detect the location of a

1 reference point on the object and to direct the
2 image analysis equipment to this part of the object.

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4 34. A detector as claimed in any of claims 31 to
5 33, wherein the source of electromagnetic radiation
6 comprises a source of ultraviolet light.

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8 35. A detector as claimed in any of claims 31 to
9 34, wherein the image analysis equipment is adapted
10 to divide the camera image into a plurality of sub-
11 regions and to count the number of pixels
12 illuminated in each sub-region to produce an
13 alphanumerical code corresponding to the camera
14 image.

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16 36. A detector as claimed in any of claims 31 to
17 35, wherein the detector is adapted to recognise and
18 record information relating to a secondary
19 identifier, and the processing equipment is adapted
20 to compare the alphanumerical code relating to the
21 object to be verified only to alphanumerical codes
22 relating to recorded objects that have the same
23 secondary identifier.

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